Docket No. 12027-0002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

WONG

Serial No.: 09/778,881

Filing Date: February 8, 2001

Art Unit: 2172

Examiner: Woo, I. M.

For: Computer Automated System For Management Of Engineering Drawings
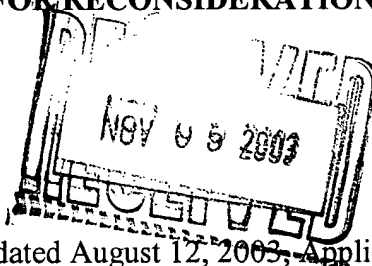
REQUEST FOR RECONSIDERATION

Commissioner of Patents
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated August 12, 2003, Applicant respectfully requests

reconsideration of the final rejection of the claims.

In review, the Examiner rejects claims 8-17 under 35 U.S.C. § 103(a), relying on the

combination of United States Patent No. 5,895,473 to Willard and United States Patent No.

6,321,232 to Syeda-Mahmood et al. (Syeda). In the rejection, the Examiner alleges that Willard

teaches the invention but for the retrieval of drawings keywords, or the contents of discrete

boxes, or the textual content of the drawing. The Examiner relies on col. 9, lines 35-49 of Syeda

to allege that it is known to retrieve drawings using conventional text. The Examiner concludes

that it would be obvious to use the drawing retrieval techniques of Syeda in the system of

Willard.

Applicant contends that the Examiner has not established a *prima facie* case of

obviousness against the claims. The reasons in support of Applicant's position are listed below

by the headings of the INVENTION, DIFFERENCES WITH WILLARD, DIFFERENCES

WITH SYEDA, LACK OF MOTIVATION, and SUMMARY.

INVENTION

The invention is directed to a process for indexing engineering drawings which uses a rule based method for locating and identifying text frames and text boxes. This rule based method allows the identification, management, and retrieval of engineering drawings without any user input, thus the "automated" language in the claims. The inventive method is capable of identifying the relevant text boxes where information will be found regardless of the orientation or position of the text in the drawing.

While keywords are used to retrieve the contents of discrete boxes in the present invention, the method involves more than just the use of keywords. It is both keywords and layout requirements of the title box. For example, there may be several keywords in an engineering drawing, but not all of them are useful to extract information from the title box.

According to the inventive method, every keyword is examined to see if the basic layout of the title box is satisfied, namely: (1) is it satisfied by a rectangle; (2) are there other textual strings in the same rectangle; or (3) are there other rectangles that contain textual strings and share at least one boundary with the original rectangle.

The process of locating and identifying the relevant boxes, the contents of which can be used to identify the drawings is unique to the invention and not disclosed in either of Willard or Syeda.

The invention described above relates to the claims in that claim 8 requires the step of analyzing graphical and textual data to identify drawings, the discrete boxes and any text within the discrete boxes and drawings. Then textual information in the discrete boxes is stored in a database for later drawing identification.

DIFFERENCES WITH WILLARD

Contrary to the rule based method of the invention, Willard uses a model based method and this method is fundamentally different from that claimed. With the model based system of Willard, a user has to manually identify text boxes during a definition stage, see col. 3, lines 1-10. The region and layout of the title box is defined by the user interaction, col. 3, lines 46-64. Thus, any drawing must have a predefined title box pattern or the process will use the most closely matching pattern, see col. 6, lines 34 and 35. If the pattern is not suitable to the drawing, the field information cannot be retrieved correctly.

In Willard, the area for extracting textual information is a "closed rectangular region", not a closed rectangle that is surrounded by four lines. Willard only records the coordinates of each rectangular region in the sample drawing so even if the layout of the title box of the processed drawing is the same as the sample drawing, but the size of the region changes, Willard cannot extract the information. Further, if the processed drawing is rotated or scaled compared to the sample drawing, it will be necessary to prepare another pattern.

Willard does not have the capability to process the variations described in the preceding paragraph, whereas the inventive method can because it analyzes the relationships between the lines and the text and the meaning of the text words. This analyzing step of the text lines is clearly laid out in claim 1, and no such step is found in Willard.

Another critical failing in Willard is that Willard only processes the textual information in the title block region, col. 3, lines 16-18. In contrast, the analyzing step of claim 8 results in identification of text anywhere in the drawing. This claim step is NOT TAUGHT in Willard, and this failing taints the rejection regardless of whether Syeda is used or not. Again, Willard

does not teach or suggest this aspect of the claim, and it cannot be relied upon to reject claim 8 for this reason alone.

Another key difference between Willard and claim 8 is that Willard only analyzes the digital data in the drawing to identify a series of discrete boxes but DOES NOT PROCESS THIS GRAPHICAL DATA, as is required in claim 8. While the Examiner alleges that Willard does process the graphical data when rejecting claims 8-10, pointing to its description beginning at line 45 of col. 3 and ending at line 5 of col. 5, Applicant contests this allegation by the Examiner. Applicants cannot find any reference to an analysis of graphical data that would read on that set forth in claims 8-10, and the Examiner is respectfully requested to clarify the basis for the rejection of these claims or withdraw the rejection and pass these claims onto issuance.

Yet another difference is the use of keywords in Willard. Referring to col. 4, lines 6-14, keywords are used to delete unwanted text, and they are not used as done in the present invention.

In summary, Willard is fundamentally different from the claimed invention. Whereas Willard requires a user to identify the text box, the present invention is directed to an automated system whereby textual and graphical data is analyzed by a central processing unit to identify: (1) a series of discrete boxes containing keywords; (2) any text within the drawing; and (3) any text within the discrete boxes. In fact, the present invention is an elegant solution to the problem that has vexed the industry of Willard for many years.

DIFFERENCES WITH SYEDA

Syeda does not supply the deficiencies noted above in Willard. Syeda is akin to Willard in that it requires user interaction to locate indexing information through a system of training, see

col. 16, line 5, and this cannot be said to be the automated analyzing defined in claims 8-10. Syeda also relies on using title block templates, col. 16, line 48, to enable the process to locate text boxes.

The indexing of Syeda is also different from the present invention in that an expert user is required to highlight the title block regions in the drawing, col. 17, line 18, which is the same user-type interaction required in Willard. Again, the present invention is an automated engineering drawing retrieval system that has no need for user interaction.

Syeda also recognizes the problem in this field by noting that "localization of the title block is a difficult problem" and "one which has been addressed by only a relatively few researchers." In spite of this recognition in 1999, no one until the instant inventor has solved this art-recognized problem.

For the reasons above, Syeda does not teach that which is lacking in Willard, and even it were combined with Syeda, the two references fail to render the invention of claims 8-10 obvious under 35 U.S.C. § 103(a).

LACK OF MOTIVATION

Applicant also questions whether the rejection uses the requisite motivation for the combination as is required by 35 U.S.C. § 103(a). Just because Syeda may use keywords does not mean that one of skill in the art would be motivated to use them in Willard. While Willard and Syeda are generally directed to systems for extracting text from drawings, they do not operate in similar manners whatsoever. With the systems of Willard and Syeda being so different, why would one merely pluck the word recognition of Syeda and use it in Willard.

Where and how would it be used? The Examiner is using hindsight to formulate the rejection, and this use taints the rejection so that it must be withdrawn.

Again, the Examiner is called upon to support with objective facts the reasoning for modifying Willard with the teachings of Syeda.

SUMMARY

Applicant contends that the Examiner has not made out a *prima facie* case of obviousness against claims 8-10 and these claims are patentable over the applied prior art. Claims 11-17 are also in condition for allowance by reason of their ultimate dependency on claim 8.

Therefore and in light of the arguments and presentation of claims 8-17, the Examiner is respectfully requested to examine this application in light of this amendment and pass claims 8-17 onto issuance.

If an interview would expedite allowance of this application, the Examiner is invited to telephone the undersigned at 202-835-1753.

The above constitutes a complete response to all issues raised in the outstanding Office Action of August 12, 2003.
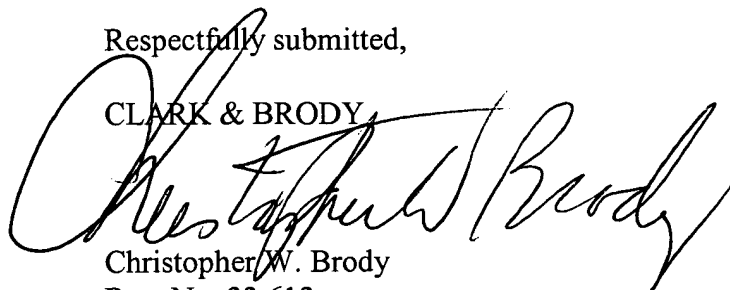
Again, reconsideration and allowance of this application is respectfully solicited.

Please charge any fee deficiency or credit any overpayment to Deposit Account No. 50-1088.

Respectfully submitted,

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